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Good Rangeland
Management
Yields Better Grass



Cover: Native grass on Kansas rangeland provides cover that protects soil and water resources and supports livestock and wildlife. (Photo by Ron Nichols.)

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Secretary of Agriculture

Wilson Scaling
Chief, Soil Conservation Service

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Comments from the SCS Chief:

Sharing Ideas for Top-Notch Range and Pasture

RANGE AND PASTURE management, like most pursuits, is a learning experience. We never stop learning. We have to keep an open mind and share ideas that look to the future. As a rancher on private land, I know the value of listening to other ranchers, SCS, and the many other professionals both inside and outside Agriculture. As an SCSer, I know the value of listening to the private sector ... to the people who make a living on the land.

In the private sector, we know that an open mind is good for business and good for the environment. We listen to experts on the national and global economy to stay on top of the marketplace. We look for the best mix of traditional and nontraditional uses of range to get the most return. We try to spot potential resource problems and do something about them at the local level.

In SCS, we know that an open mind is essential to being good problem solvers. On range and pasture, we balance our recommendations according to the different values and uses of these resources. We know that our recommendations must meet the private sector's needs, so we work side by side with farmers and ranchers.

Soil erosion control and water resource protection are benefits of this open-minded approach to forage resource management. By putting our heads together we can better our chances of surviving drouth, coordinate resource management in multiuser areas, maintain water quality and quantity, and, hopefully, ensure a lasting cover of grass and trees under the Conservation Reserve Program.

Range and pasture are vast and vital resources in America. They are resources in good hands – the hands of professional ranchers, farmers, conservationists, and scientists who share their ideas and their commitment to good resource management.



Rangeland

Range Conference Looks Ahead

FOCUS ON THE FUTURE," a Soil Conservation Service National Range Workshop was held in Fort Worth, Tex., September 12-16 to identify the future direction of SCS range conservation assistance and explore new trends and technologies in range management.

At the urging of SCS Chief Wilson Scaling, conference planners invited representatives of the private sector, including ranchers from many States, researchers, agribusiness leaders, other agencies, and members of interest and professional groups such as the National Cattleman's Association and the Society for Range Management.

Chief Scaling was adamant that those directly responsible for man-

aging privately owned rangelands be represented. He said the best way to find out what type of assistance SCS clientele want and need is to involve them in conferences like this.

Presentations included one on proper grazing management given by Bob Skinner from Jordan Valley, Oreg., who represented the National Cattlemen's Association.

A list of major rancher recommendations was summarized by Barry Dunn of Mission, S. Dak. The requests help to verify that range conservation emphasis is headed in the right direction. They include:

- Continue to emphasize rancher responsibility in the wise use of private range resources.
- Stress the relationship between rangelands and the production of adequate amounts of high-quality water.
- Capitalize on the new interest in range resources by staffing more field offices with people trained in rangeland management.
- Stress coordinated resource management, including improved inter-agency communication, and total ranch planning.

• Extend the Great Plains Conservation Program beyond 1991 and emphasize water quality and quantity.

• Include practices addressing water quantity and quality in conservation plans; stress quality planning and owner-operator involvement; and give more emphasis to management of noxious weeds.

James Newman, Director of the Ecological Sciences Division at SCS National Headquarters, issued a challenge. He said everyone who could design and implement the proper action to pursue the future direction of conservation assistance was present at the conference: the SCS range conservation leadership, the researchers, the ranchers. He encouraged them to return to their home States to work together to implement what they had learned from the presentations and from each other.

Jerry Schwen, public affairs specialist, SCS, Denver, Colo.



Rangeland being managed to achieve even grazing. At a recent range workshop, SCS range conservationists, researchers, and ranchers were challenged to work together more closely on protecting and improving rangeland resources.

The pump, powered by a solar panel with an output of 115 volts DC and 3.9 amps, provides 6 to 7 gallons per minute (about 2,000 gallons per day) of water at the storage pit.

Sun Powers Stockwater Pump

WHEN UPPER Musselshell Soil Conservation District employees hosted the Harlowton Kiwanis Club for a tour of a new solar water pump installation on the Lammers ranch last summer, the mood was light and everyone was having a good time. But nobody was laughing at the pump installation, especially the beaming SCS engineers and technicians. It was impressive.

Careless Creek Ranch, located east of Hedgesville, Mont., is owned by the Lammers family who already had a portable solar pump system which is trailer mounted, ready to go anywhere.

But this new pump...well, listen up: A collector well is fed by an underground line from Careless Creek; this line involves some 60 feet of collector pipe under the creek bed. The pump draws water from the collector well and lifts it about 80 feet to a storage pit.

The pump, powered by a solar panel with an output of 115 volts DC and 3.9 amps, provides 6 to 7 gallons per minute (about 2,000 gallons per day) of water at the storage pit.

The storage pit, 50 feet square at the top and 10 feet square at the bottom, is lined with heavy plastic lining and will hold a maximum of 77,000 gallons of water. Lammers figures this is sufficient water for 14 days, including back-up on cloudy days.

Water, traveling by gravity flow through a 9,100-foot plastic pipe with a 4 degree slope, buried 5 feet deep, keeps two 25-foot diameter stockwater tanks supplied. The tanks are strategically located to provide water for several pastures.

Total installation cost was \$30,000. The solar pump was purchased with a \$5,500 grant from oil overcharge funds (administered by the Montana Department of Natural Resources and Conservation). The rest of the project was accomplished under an SCS Great Plains Conservation Program contract providing 75 percent cost sharing and engineering and technical assistance.

Lammers plans to install an additional 2.5 miles of pipe and another three tanks. He said the present system can keep them all supplied. This will improve livestock distribution and animal weight gain. It will also reduce erosion due to spot grazing and trailing to water and will benefit wildlife.

Adapted from an article in the August 4, 1988, edition of the *Times-Clarion*, Harlowton, Mont.



Above, tour group at collection well of solar pump on Careless Creek Ranch near Hedgesville, Mont. Solar panel can be seen above the fenced enclosure. At right, plastic-lined pit can hold 77,000 gallons of pumped water. (photos provided by the *Times-Clarion*.)



"It's easier to build, cheaper, and it works," is how Jack Pierce, owner of the Skunk Creek Company ranch, describes his new electric fence.

Electric Fence Proves Practical

"IT'S EASIER TO BUILD, cheaper, and it works," is how Jack Pierce, owner of the Skunk Creek Company ranch, describes his new electric fence. Using guidelines from the Helena, Mont., Soil Conservation Service office, Pierce installed a mile of permanent electric fence this past June.

"We needed to shorten our grazing periods and rotate our cattle to improve our range condition," Pierce said. "We also wanted to isolate our hayland acreage from the rangeland to give us more fields to graze during the growing season." The growing season is generally the time range plants are

damaged most by grazing and the time livestock should be rotated more frequently to prevent grazing damage.

The key component of an electric fence is the charger, and today's electric fence chargers are a far cry from those of a few years ago. Chargers of the past were operated with low power outputs and high impedance, which caused the pulse to be slow in leaving the charger. Poor insulation or vegetation on the fence line would dissipate the pulse so that little or no shock was felt even a short distance from the charger. Fires caused by short circuits were also a problem. With modern chargers, high energy outputs and short pulse rates minimize these problems.

The Skunk Creek Company built two sections of electric fence, one powered by a solar unit costing about \$450 and the other by a 12-volt wet cell battery costing about \$55. "The fence with the solar unit cost about the same as a standard 4-barbed wire fence and the one

without it was cheaper," said Bill Golladay, Pierce's ranch manager.

"We have installed a three-wire and a two-wire power fence," Golladay said. "Each fence has at least one ground wire with the others hot. This is very important because this is how the animal receives the shock on dry ground."

Braces and gates were built as usual (nonelectrified gates). Line posts were 1-inch diameter fiberglass with insulated wire clips that hold the wire loosely in place. Since an electric fence is a psychological and not a physical barrier, a high tensile 12-gauge smooth wire was used instead of barbed wire.

"We are very pleased with the fence," said Golladay. "It took two of us less than a day to build, braces and all. None of these cows has ever been around an electric fence, but once they learn what it is they stand clear."

Matt Ricketts, soil conservationist, SCS, Helena, Mont.



Skunk Creek Company Ranch Manager Bill Golladay connects energizer to 12-volt wet cell battery powering a 2-wire electric fence. Notice ground rod at left.

"Mark Kelner, from Bowman, has 935 acres in his pasture system. He is also pleased with the results of health and vigor in his pastures in spite of the drought.

GPCP Aids Drought Stricken Area

ARE THE STUDIES correct? Have farmers who participated in the U.S. Department of Agriculture's (USDA's) Great Plains Conservation Program (GPCP) been able to weather the drought better than nonparticipants? Consider these three examples from North Dakota, one of the hardest hit States during the summer past:

Ruben Auch, Mark Kelner, and Gerald Jahner, under the GPCP, have all adopted a rotational grazing system. In an area of the country that was especially parched, even ravaged by the drought, all three say they have benefited from this as well as other practices.

Ruben Auch, a rancher south of Napoleon, established his grazing system under GPCP three years ago. He subdivided 940 acres and has been maintaining a herd of 180 cows and calves on it. His grazing system required a water supply system and 22 miles of fence to subdivide the pasture into grazing units.

So far, Auch has not had to sell any of his herd nor buy hay for it. He watched his own pastures maintain high vigor through frequent and adequate rest, while other pastures turned brown during the summer months.

"With this system, I hope to turn a profit this year," he said. "That

might happen if I can get to November without feeding any hay."

Gerald Jahner, a farmer/rancher from Mott, had similar results this summer. He is in his fourth year of the grazing system and has been able to maintain his base herd size of 160 cows. Jahner is participating in his GPCP contract because he made a commitment to improve the rangeland he has instead of renting more.

"Due to the uniform grazing and adequate rest, my pasture not only looks good, but actually is healthy, vigorous, and has a good root system," Jahner said. "There are more grass species, and some regrowth, too.

"But one of the biggest surprises for me," he continued, "is the fact that the cattle seem to be easier to handle and have increased in size.

Mark Kelner, from Bowman, has 935 acres in his pasture system.

He is also pleased with the results of health and vigor in his pastures in spite of the drought.

"The rotation limits hoof action," he said. "This seems to aid in better soil moisture absorption and retention."

When asked if he planned to sell any of his herd...

"No, sir," was his reply.

But Kelner also implemented conservation tillage into his farming operation when he began his participation in GPCP over 3 years ago. Because of the abnormally hot weather and dry conditions this year, he notes several significant advantages of his tillage system. Stubble, for example, left standing over the winter, caught snow for additional moisture in the spring. Soil protected by residue increases infiltration, reduces evaporation, keeps the soil cooler, and has prevented wind erosion.



The Great Plains Conservation Program, established in 1956 following a severe drought, offers long-term contracts (3-10 years) that provide technical assistance and cost-sharing to help farmers protect their light and fragile soils from erosion and to stabilize production.

The program is voluntary, and landowners under contract can apply the soil and water conservation systems suited to their own special needs. Once landowners have developed conservation plans and signed contracts with SCS agreeing to install the conservation practices on schedule, SCS reimburses them up to 80 percent of the cost of each approved practice. SCS gives technical assistance in installing and maintaining the conservation practice through the term of the contract. The maximum for any one contract is \$35,000.

Side benefits of the program include improved fish and wildlife habitat, water quality, and recreational facilities.

The Great Plains, known as "America's Breadbasket," produces 60 percent of the U.S. wheat and 30 percent of the beef cattle. The 10 Great Plains States are Colorado, Kansas, Montana, Nebraska, New Mexico, North Dakota, Oklahoma, South Dakota, Texas, and Wyoming.

These States are particularly subject to wind erosion, which is especially destructive in a dry year.

Leslie Wilder, public affairs specialist, SCS, Washington, D.C.

Arlene Deutscher, public affairs specialist, SCS, Bismarck, N. Da

North Dakota rangeland adjacent to Yellowstone River. Conservation assistance provided through the Great Plains Conservation Program helps ranchers to protect soil and water resources and stabilize production.



Grasslands Forum Scheduled

A FORUM, "Our National Grasslands...The Second 50 Years...A Range of Opportunity," is scheduled to be held in Bismarck, N. Dak., June 19-23, 1989. The goal of the forum is to provide the opportunity for interested and affected neighbors, users, and managers of the National Grasslands to reflect on the past, assess the present, and look to the future.

There are three objectives:

- To increase awareness of the history, role, and accomplishments of the National Grasslands and to provide a forum to consider the challenges and opportunities of the 21st century.
- To consider the future of National Grasslands management based on changes in social and economic conditions and public desires.
- To identify issues and concerns and share creative ideas on management of the National Grasslands.

The National Grasslands are located in 14 States and are managed by the Forest Service of the U.S. Department of Agriculture (USDA).

Forum sponsors include USDA's Forest Service, Soil Conservation Service, and Extension Service; the U.S. Department of the Interior's Bureau of Land Management; the Soil and Water Conservation Society; and the Society for Range Management.

Registration for the 4-day forum will be June 19, 1989. There will be presentations on issues involved in grasslands, and a tour of the Little Missouri National Grassland in North Dakota.

For more information write to Arlene Deutscher, Public Affairs Specialist, USDA Soil Conservation Service, P. O. Box 1458, Bismarck, ND 58501, or call (701) 250-4441.

Reservation Improves Rangeland

THE TOHONO O'odham Nation covers 2.9 million acres in the Sonoran Desert of southern Arizona and is the second largest Indian Reservation in the United States. Except for about 3,000 acres developed for farming, the area is primarily rangeland. The tribe is making a renewed effort to improve the management of their vast range resource.

During the 1930's, the U.S. Government established 11 grazing districts within the reservation. These districts, which range in size from 10,000 to 457,000 acres, were marked by boundary fences but contained few interior cross fences.

Over the years, residents developed grazing associations centered around villages. Some of these associations made an effort to improve management by building interior fences but had limited success.

In 1981, the residents of the villages of Choulic and Coldfield petitioned the Tribal Council to fence out approximately 42,000 acres within the Baboquivari District. The Tribal Council supported the petition. With the help of the U.S. Bureau of Indian Affairs they obtained fencing materials to establish a three-pasture ranch called the Chutum Vaya (Bear Well) Grazing Association.

The Soil Conservation Service conducted a range site inventory and determined that the area had great potential for improvement. SCS helped the grazing association establish a three-pasture rotation system. In early 1983, the grazing association reduced the

number of animals to the carrying capacity of the range, consolidated the herds into one large one, and began to rotate use of the pastures.

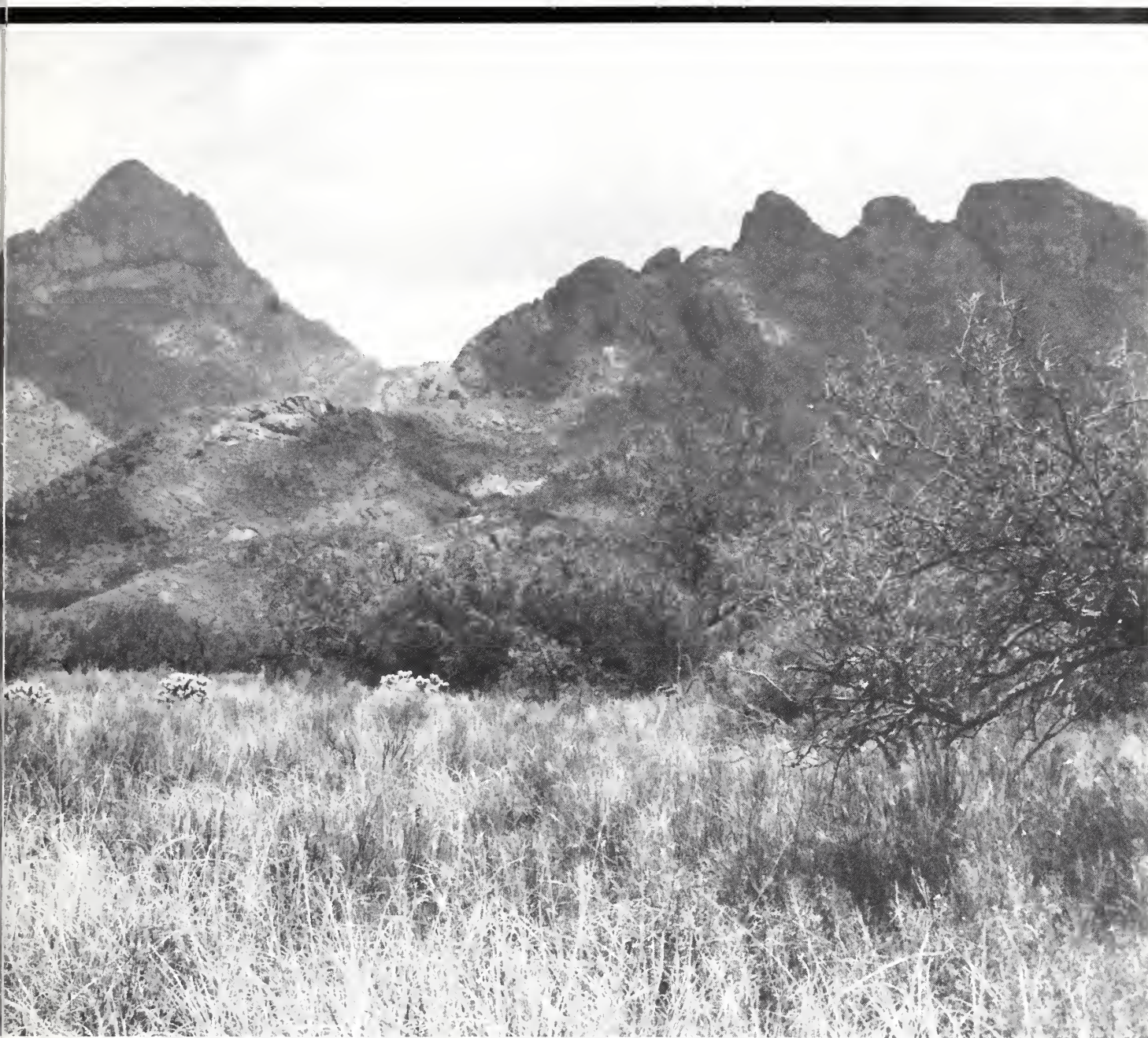
SCS monitoring has since shown a dramatic change in the vegetation. The available forage changed from browse, cacti, and annual grasses to perennial grasses. With an improving base of perennial grasses, forage production does not fluctuate from wet to dry years nearly as much as it used to. During recent drought conditions, the association's rangeland produced ample forage for cattle and wildlife while the land outside of its boundaries produced almost nothing.

Wayne Harris, a member of the grazing association and a director of the newly formed Tohono O'odham Soil and Water Conservation District, said, "It has been hard work to get conservation going, but it has been worth it. Our land is healing, our cattle are healthier, and wildlife are returning to our area."

Randall L. Gray, district conservationist, SCS, Sells, Ariz.

Daniel Robinett, area range conservationist, SCS, Tucson, Ariz.

During recent drought conditions, the association's rangeland produced ample forage for cattle and wildlife while the land outside of its boundaries produced almost nothing.



Improved management is bringing back perennial grasses on rangeland of the Chutum Vaya Grazing Association of the Tohono O'odham Nation in southern Arizona.

United Nations Development Program, the Ford Foundation, and the International Development Research Center. Co-sponsors are the National Bank of Agriculture and Rural Development and the Council of Scientific and Industrial Research.

Stopping Noxious Weeds

ON RANGELAND, noxious weeds increase production costs, destroy wildlife habitat, and increase soil erosion. Today, 8.4 million acres of Montana's 65 million acres of public and private rangeland are infested by noxious weeds. Ranchers and public land managers aim to stop them.

In 1983, landowners and conservation groups in southwestern Montana recognized that effective weed control required cooperation among private and public land managers across large areas. They organized and carried out a successful program for a 35-square mile area. Their success encouraged others to organize similar efforts.

Growing interest in coordinated weed management and increasing requests for funding prompted the Montana State Legislature to pass the Noxious Weed Trust Fund Act in 1985. The purpose of the act is to promote cooperative integrated weed management programs by providing technical and financial assistance to interested groups and landowners.

Before cost-share funds are made available, all private, State, and Federal land managers within the

project area must cooperate in the program, and educational and training programs must be part of the total effort.

One project to receive funding under the act was proposed by the Headwaters Resource Conservation and Development (RC&D) Area Council for a coordinated weed control effort on 244 square miles in four counties. The program consisted of on-ground weed control, public education, and creation of new weed management groups. The project area included rangeland, public right-of-ways, recreational areas, and incorporated towns.

Since 1985, 15,000 acres of spotted knapweed have been treated in the original four-county area. An integrated weed management program was used including biological, chemical, and cultural techniques.

Since 1985, the Southwest Coordinated Weed Management Area, assisted by the Headwaters RC&D Range/Weed Committee, has expanded to include 26 new weed management areas totalling approximately 1.5 million acres.

Kim Berry, public affairs specialist intern, SCS, Washington, D.C.

Leafy Spurge Attacked

A NOXIOUS WEED took center stage in Broken Bow, Nebr., this past August.

A plastic bucket holding a bushy leafy spurge plant held a prominent spot near the podium at the State's first leafy spurge conference. The conference was attended by more than 250 farmers, ranchers, and

representatives of different organizations and government agencies who are concerned about the weed's serious impact. Damage by leafy spurge (including control costs and production losses) in the northern Great Plains States is estimated at \$35 to \$40 million per year on 2-1/2 million infested acres.

During the conference, forage and research specialists from several States discussed the different combinations of chemical, biological, and cultural measures used to fight leafy spurge. Ranchers and others told of their personal experiences with the weed.

"Leafy spurge is an extremely troublesome weed and it deserves all of the attention we're giving it today," said George Beck, a weed specialist with Colorado State University. Beck said the weed is a creeping herbaceous perennial that is "very, very aggressive."

Leafy spurge plants within a single square yard can produce 3,000 or more seeds, Beck said. When a seed pod dries, it explodes, sending its seeds 10 to 15 feet. Seeds can lie dormant in the soil up to 8 years. Roots, which can penetrate 10 to 15 feet into the soil, can hold food reserves lasting up to 5 years.

The conference was sponsored by the North Central Nebraska Resource Conservation and Development (RC&D) Area, the Nebraska Leafy Spurge Working Task Force, the Soil Conservation Service, the Broken Bow Chamber of Commerce, and Dow Chemical Co. Sponsors plan to hold the conference on a yearly basis.

Adapted from an article by Mary Pat Finn in the *Daily News*, Norfolk, Nebr.

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Rotate Cattle for Benefits

PAUL PETERSHEIM, a dairy farmer in Garrett County, Md., had wondered whether it would be worthwhile to install a rotational grazing system on his 10-acre farm. Two things made him decide it was.

One was a presentation on alternative pasture management at a group meeting sponsored by the Garrett County Soil Conservation District. The other was watching how well a rotational grazing system worked on his brother-in-law's farm in Pennsylvania. He was getting more production at a lower cost.

With technical assistance provided by the Soil Conservation Service through the conservation district, Petersheim installed a system on his farm, and is now one of eight farmers using a rotational system in Garrett County. Another 15 systems are planned.

With rotational grazing, a pasture is divided into small paddocks. The herd is allowed to graze a paddock for 2 to 6 days, and then moved to another paddock. The quality and quantity of the desired forage increase because new growth has a chance to mature during resting periods. The improved plant cover provides more protection from soil erosion.

Meetings:

November	6 - 9	1988 International Irrigation and Technical Conference, Las Vegas, Nev.
	13 - 15	The American Society of Farm Managers and Rural Appraisers, Inc., Indianapolis, Ind.
	13 - 15	The National Association of State Universities and Land-Grant Colleges, Dallas, Tex.
	13 - 16	National Forest Producers Association, Ft. Lauderdale, Fla.
	14 - 17	The American Forestry Association Members Meeting, Wash., D.C.
	15 - 18	International Conference on Tidal Hydrodynamics, Gaithersburg, Md.
	15 - 19	North American Lake Management Society, St. Louis, Mo.
	16 - 20	National Association of Biology Teachers, Chicago, Ill.
	27 - Dec. 2	American Society of Agronomy, Crop Science Society of America, Anaheim, Calif.
December	27 - Dec. 2	American Institute of Chemical Engineers, Wash., D.C.
	4 - 7	Western Forestry and Conservation Association, Seattle, Wash.
	5 - 9	National Symposium of Mining, Hydrology, Sedimentology, and Reclamation, Reno, Nev.
	12 - 13	The American Society of Agricultural Engineers, Chicago, Ill.
January	12 - 14	National Water Well Association, Las Vegas, Nev.
	8 - 12	American Farm Bureau Federation Annual Meeting, San Antonio, Tex.
	18 - 22	57th Annual North American Gamebird Association (NAGA), Charleston, S.C.
	31 - Feb. 1	Tenth Annual Eastern Iowa Tillage Show, Cedar Rapids, Iowa

The improved forage quality can also greatly reduce feed costs. Petersheim, for example, used 11 tons of hay for his 20-head operation in 1986, compared to 3 tons in 1987 when he first installed his rotational grazing system. The need for silage corn has been reduced, and grain costs have been cut by about 25 percent.

Interest in rotational grazing is growing, especially in the Northeast. More and more producers are considering rotational grazing an integral part of their total farm management.

Richard Perrygo, public affairs specialist intern, SCS, College Park, Md.